

times, but never with the appetites they had shown in the previous autumn before hibernation. By June I still had four feeding, almost full fed, but occasionally a larva would be seen to remain in the same position for several days and when touched was found to be dead and quite hard to the touch. The last survivor pupated while I was on holiday in Suffolk in June and the moth emerged on the 17th July, as already stated. Although the larvae feed on yarrow and have actually been found on this plant at Dungeness, it is felt that it has other foodplants at Dungeness. The fact that my larvae took to mint so readily made me think of *Teucrium scorodonia* (Wood-sage), which is such a common plant at Dungeness (but the larvae did not accept it).

26 Finsen Road, London, S.E.5. i.1967.

## Butterflies in Greece, May, 1966

By H. W. MACKWORTH-PRAED

The following account of twelve days in Greece in early May 1966, mainly at Delphi, does not add greatly to previous records such as that of Baron Charles de Worm's visit in April 1963 (*Ent. Rec.*, Vol. 75, pp. 233-8), but as the season was somewhat early, the spring species were only to be found at higher levels, and summer species had begun to emerge.

The party, consisting of my father, Col. C. W. Mackworth-Praed, my mother, my wife and I, and our eldest daughter, assembled at Athens airport in heavy rain on the evening of 1st May, which was discouraging after having left England in fine hot weather; and we drove to our hotel through streets awash. Next day, however, it slowly cleared, and we saw *I. podalirius* L. and several *E. ausonia* Hb. flying on the slopes as we made our way to the Acropolis. This we followed by a visit to the Pnyx on the opposite hill, and on walking round to a spot sheltered from the wind, we found in addition *L. boeticus* L. and *T. actaeon* Rott. flying over long grass in the sun which was then emerging. Near the summit were a few *V. atalanta* L., *V. cardui* L. and *P. egea* Cramer, and we watched a party of bee-eaters, *Merops apiaster*, flying round the seaward slopes beyond the Pnyx.

On the 3rd May, in fine weather which continued for most of our stay in Greece, we collected our hired Peugeot car, and set off for Delphi. While driving in Athens had its anxious moments, the country roads were not very crowded and the main hazard was coaches. We stopped first near Eleusis, where a few butterflies near the roadside included *G. alexis* Poda (*cyllarus* Rott.), *R. alchymillae* Hb., and worn specimens of *G. farinosa* Zell. and *Callophrys rubi* L. A stop for a picnic lunch beyond Levadia added *L. thersites* Chpn., flying along the edge of a cornfield to which wild gladioli added colour. Abundant here was a small Pyralid with pectinated antennae, *Synaphe moldavica*. A final stop in the late afternoon about 15 km. short of Delphi was made on the summit of a low pass (900 m.), a locality which we visited again later on. This pass, above the village of Arachova, was conveniently equipped with a large parking space, a refreshing fountain (and a shrine if needed) and the choice of walking down the ridge where a mass of wildflowers edged the vineyards, or up to higher ground towards cliffs from which a flock of Alpine Choughs flew piping out. Red-rumped swallows circled, while ravens

and hoodie crows passed at intervals. The many Pierids included *A. crataegi* L., which we were not to find present at Delphi, and *A. gruneri* H.S. Two species of coppers were noted, *L. phlaeas* L. and *H. tityrus* Poda (*dorilis* Hufn.), the latter also not being seen later at Delphi, while of the fritillaries we took *M. cinxia* L. and *H. phoebe* Schiff. Of the swallow-tails, *I. podalirius* L. and *P. machaon* L. sailed along the edge of the vineyards, but we did not here see *P. alexanor* Esp. which we were to find common at Delphi. However, on this and a later occasion, I saw a swallow-tail with an apparently more direct and less wavering flight, which I was unable to identify, and which seemed to inhabit the higher ground. This however was covered in prickly scrub, which tore my net in one pursuit, so then although I netted the quarry, it escaped before I could secure it, or identify it other than as a swallow-tail, of the general appearance of *P. machaon* but considerably darker.

We then went on to Delphi, where we stayed from 3rd until 9th May at the Hotel Vouzas. This hotel is built down a cliff, so that the reception rooms are at street level on the top floor. Our bedrooms, in the floor below, looked out over the valley, where far beneath we could see a dry river bed, with olive groves on each side. The opposite hillside was inviting, but to reach it would involve a considerable detour, and we never got there. To the South-west the valley opened to reach the Gulf of Corinth, with the small port of Itea, and the hills of the Peloponnese were visible beyond. At dawn a chorus of bird song came up from the valley, and occasional scavenging vultures or crows flew past level with our windows.

Walking down next morning to visit the temples, we found a swallow-tail, *I. podalirius* L., drinking from a fountain outside the hotel, and looking over the wall beside the road, we saw a number of female orange-tips, *A. gruneri* H.S., quartering the little fields on top of the cliff. Joining one of the numerous parties inspecting the ruins, we passed several fritillaries, *Melitaea trivia* Schiff., basking on the flowers between the fallen columns, while Commas, *P. egea* Cramer, flew round and settled on the pillars that remained. White admirals, *L. anonyma* Lewin, were drinking from the cistern below the Castalian spring.

Having made our visit to the ruins, we sought a less frequented place for collecting, trying first the path running under the cliff. It was apparent that we were too late for the spring flowers, no orchids were visible, and the chief colours were provided by the poppies, of a deeper red than our own, and large yellow clumps of Jerusalem sage, *Phlomis fruticosa* L., neither of which seemed to offer attraction to butterflies present. Disturbing a tortoise and a pair of rock nut-hatches, *Sitta neumayer* we went to stand in a funnel at the foot of the gully below the griffonry, and awaited events. A variety of species made their appearance in due course, but usually singly, and there was by no means a profusion of insects. The spring pierids were mostly over; only *Euchloe ausonia* Hb. was common. Swallow-tails were *alexanor* and *podalirius*, with *machaon* less frequent. Fritillaries were many, particularly when we climbed up to the ridge above the stadium, where greater freedom of movement was possible, but they were entirely of two species, *Melitaea trivia* Schiff., rather worn by now, and *M. phoebe* Schiff., except for some occasional *M. cinxia* L. in good condition. Lycaenids were not common, and the few skippers were nearly all *Spialia orbifer* Hb.

This area, and that adjoining the temples below the road, were our main collecting grounds during our stay. On one morning (6th May) we ascended the zigzag track leading from the ridge above the stadium leading up to the plateau high above the town. This rather interminable climb brought us to a very different type of country, of a more garrigue character, where spring insects were still abundant. Unfortunately we were not adequately provisioned for an extended stay, and after reaching the very welcome fountain about half-hour beyond the edge of the plateau, we had to retrace our steps. It would probably have been more profitable to go on to the further slopes beyond the fountain, but as it was we took on this plateau several species we did not see elsewhere. The same insects as at the town level were present up to the top of the zigzag path, though some of these were in better condition here than lower down, but as soon as the plateau was reached, there was considerable change. Here males of the attractive little orange-tip, *A. gruneri*, were the most conspicuous insects, with occasional *Zerynthia polyxena* Schiff., by now rather worn. The Queen of Spain fritillary, *I. lathonia* L., was frequent on the path, and several kinds of blues were noted, particularly *Philotes vicrama* Moore.

As usual in mountainous country, the choice of collecting grounds at a greater distance was somewhat limited by the difficulties of finding a suitable place to leave the car, and at that season all tracks leading off the main road were in constant use for bringing in the hay. Two visits to the shore of the Gulf of Corinth were not entomologically rewarding, mainly owing to the strong wind. Also the construction of a coastal road westwards from Itea, which will no doubt be extremely attractive in a few years time, had reached the stage of maximum earth-moving and dust. A more fruitful area was the valley floor below Delphi, which we reached on 8th May from Hrissos, the first village down the road. Leaving the car at a point where the road, having been through the upper part of the village, emerged to turn back into the lower, we walked down a long path between the olive groves, to a point almost directly under our hotel. The valley was not as dry as appeared from above, and there was still plenty of water in the irrigation channels. Here we found many dark hairstreaks, *Strymon acaciae* Esp. being plentiful, and *Strymon ilicis* Esp. occasional. Pierids were in greater abundance, with a fresh brood of *P. rapae* L., and skippers included *Reverdinus alchymillae* Hb. and *Adopoea flava* Brunnich. All three swallowtails were frequent, and the first *M. jurtina* L. was seen.

Though we tried other areas in the Delphi neighbourhood, they did not yield anything different, and the more accessible ground immediately west of the town was particularly disappointing, though perhaps this is as well since the town seems to be expanding onto it. On 7th May, we drove through Arachova, and after a stop at the pass, went on to visit the monastery at Osios Loukas. The butterflies in this area were the usual summer species of meadowland, Black-veined whites, Clouded Yellow, Small Coppers, Common Blue, with nothing of greater interest observed.

Mention must be made of some of the other fauna encountered at Delphi. The tortoises were fairly large, too big to pick up easily with one hand, and were infested with ticks on their underside where the legs came out of the shell. The highest one we found was half-way up the zigzag path to the plateau. All appeared to be the Margined Tortoise,



*Testudo marginata* Schoepff. We saw several snakes, which whipped into the scrub before we could identify them, but they did not look unlike grass snakes, and we also on one occasion saw a much larger dark snake on the roadside. Lizards were as frequent as usual, and even more later at Mt. Parnes. Birds at Delphi included two species of vultures, the Griffon (*Gyps fulvus*) and less frequently the Egyptian (*Neophron percnopterus*). Both frequented the rubbish tip on the road to the west, and the former soared continuously over the temples, where the guides indicated them to the visitors as eagles. Lesser kestrels (*Falco naumanni*) were the only hawks seen, and we found a colony of them nesting in a quarry along the coastal road being made west of Itea. Ravens and hooded crows were continuously flying about the valley. Attractive small birds were the black and white Wheatears, which perched on the largest boulders of the hillsides, whence they flew up at passing insects. They were such a feature of the landscape that no doubt the Greeks had a word for them, though it does not seem to have been *Oenanthe*, for which Liddell and Scott suggest larger fowl.

The lighted shop windows along the streets of the town provided a variety of moths in the evenings, but no hawk moths.

Among them we found *Arctia hebe*, *Leucania vitellina*, *Plusia illustris* and *P. circumflexa*, *Gnopharmia stercoraria*, *Protorhoe unicata*, *Sterrha filicata* and three or four other species of *Sterrha*, *Eupithecia venosata*, *Stenia bruquieralis* and *Loxostoge palealis*. Day-flying moths at Delphi included a brilliant form of *Heliodes dipsacea* with forewings as purple as the best form of *P. viridaria*, also *Tarache lucida*.

Heavy rain marked our last evening at Delphi on 8th May, but it cleared next morning and we left under a rainbow. It remained windy however, and we saw few insects on our drive through Levadia and Thebes to the autoroute. We deviated towards Chalchis and lunched in attractive maquis country, with several sorts of cistus in flower, and a fine view looking over the gulf towards Euboea. Returning to the autoroute, we continued to our next stop at a hotel on Mt. Parnes, to the north of Athens, which rises steeply from the plain to 1400 m., and up which a good road runs in continuous hairpins. We were the only visitors in our large hotel, which appeared from its indifference to guests to be a nationalised undertaking. Nor was the locality of much interest, as although the combination of rocky woodland and wide grass glades appeared satisfactory, there was evidence of overuse in summer by campers, and the lepidoptera were very much as might be found in any comparable scene in any part of Europe, and much less than some.

*E. ausonia*, *M. cinxia*, *V. cardui*, *V. atalanta*, *P. megaera*, *C. pamphilus*, *L. phlaeas* were noted as well as the skipper *S. orbifer* which was in rather fresher condition than at Delphi. A fine *bellis* form was however taken of the Mazarine Blue, *C. semiargus* Rott. Under the trees two or three species of orchids were still in flower, and we saw a pair of butcher birds, *Lanius collurio* nesting, but access to much of the upper part of the hill was prohibited by notices of which—although the precise interpretation eluded us—appeared to be of the usual forbidding character of defence establishments.

Having inspected our surroundings, and finding no petrol or provisions obtainable locally, we decided to drive down and make a tour towards Marathon. We bought sufficient for our lunch at a village called Barnabas, and ate it a little further on at a pleasant stream beside a

copse. *P. egea* frequented the bridge, and *P. aegeria* the copse, while from a clump of grass in a neighbouring field started a tortoise which cantered slowly for better cover. This again, like the ones at Delphi, was *T. marginata* and equally infested with ticks. Skippers and Blues were plentiful here, the former both *R. alchymillae* Hb. and *S. orbifer* Hb., and the latter *G. alexis* Podu and *P. icarus* Rott. It was rather a pleasant spot, and the lady who had spread out her multicoloured carpets on the rocks after washing them in the stream was too polite to intrude. We drove on to Marathon and the mound over the Persian dead, where it was again very windy, and back to Mt. Parnes on a well-made road through Dionysos.

A further walk round Mt. Parnes next morning confirmed our disappointment with the place, and as it would anyway have been impossible to have reached the airfield from it the following day in time to catch our plane, we packed and transferred to a pleasant hotel near the airfield in Kalamaki, a coastal suburb of Athens, and next to a large Allied war cemetery. We left our luggage and drove along the coastal road towards Sunium. We stopped for lunch when we were clear of the suburbs, but the conglomerate rocks of the coastline and the strong wind did not invite bathing. A few miles north of Sunium, however, we entered an area of limestone and, stopping to admire a view over to an island, with sailing boats in the intervening strait, we saw that two or three clumps of large thistles at the edge of the road were thickly covered in butterflies, clinging on to those still in flower, sometimes several to a head. We tried to photograph this remarkable scene, and then to catch some of the better specimens, but as the strong wind bore them rapidly out of sight once disturbed, this presented difficulty. Apart from a few Lulworth skippers, *T. actaeon*, they were all of two species only, *Satyryrus bryce* Hb. (*cordula* F.) and the equally large Marbled White, *Agapetes larissa* Hb., though since the females of both were of contrasting colour (the female *larissa* being heavily stained brown on the underside of the hind wings in the manner which occurs in female *galathea*) they gave the illusion of a greater variety than was the case. We also searched the ditches and sheltered pockets on the hillsides, finding a few more, but the majority had been badly damaged by the elements. We tried to find more on apparently similar thistles on adjoining stretches of the road in more sheltered surroundings, but without success, and both species seemed localised to this one area, though the constant stream of coaches made halting impossible at some places we would have liked to try.

Sunium itself was even windier, and nothing was flying in the vicinity, as we joined the throng of visitors to the magnificent temple of Poseidon. We returned to our hotel, and early next day flew back, passing over the Peloponnese on which we looked down at the large tracts of country remote from the few roads, which may still be entomologically unexplored.

The list which follows gives brief details of the localities of the 46 species of which we took specimens, or otherwise identified. Six of the species noted by Baron de Worms at Delphi were not seen by us; possibly they were over by the time of our visit. This was my first visit to Greece, though I hope not my last, and I had been expecting a much greater distribution of suitable collecting areas, and a greater number of unfamiliar species, particularly in the Satyrids. However, we were the whole time on ground either intensively farmed or else heavily grazed

by goats, of which we often passed herds of several hundred, and it is no doubt only in the vicinity of preserved ruins or places remote from the villages that sufficient plant-life remains to provide sustenance for lepidoptera.

- Reverdinus alchymillae* Hb. Occasional. Seen at Eleusis, Delphi, Marathon; usually singly.  
(*altheae* Hb.)
- Spialia orbifer* Hb. Fairly common throughout, Delphi, Marathon, Parnes.
- Adopoea flava* Brunnich One only, seen in the valley below Delphi, 8th May.  
(*thaumas* Hufn.)
- Thymelicus actaeon* Rott. Seen only at Athens, 2nd May, and Sunium, 11th May.
- Papilio machaon* L. Not infrequent at Delphi, mainly below the town, and eastwards to the pass beyond Arachova, about 15 km. from Delphi.
- Pierourus alexanor* Esp. Fairly common at Delphi at all levels from the valley floor to just below the plateau, and more frequent than *machaon*. Not seen elsewhere, and not at Arachova.
- Iphiclides podalirius* L. Fairly common. Noted at Athens and throughout Delphi district.
- Zerynthia polyxena* Schiff. A few flying on the plateau above Delphi, 6th May. Not seen elsewhere.
- Anthocaris gruneri* H.S. The only orange-tip still flying at Delphi, the females common in the fields between the town and the ruins, but no males were seen below the level of the upper plateau, where they were common, 6th May.
- Euchloe ausonia* Hb. The commonest pierid at Delphi, but not seen high up. Frequent throughout the area visited.
- Pieris brassicae* L. Not infrequent at Delphi; specimens taken were much larger than some from the same locality, in April 1965.
- Pieris rapae* L. Common at Delphi, worn at town level, with a fresh brood emerging in the lower valley.
- Pieris ergane* G.-H. Three taken at Delphi, near the town. We did not take either *manni* or *krueperi*, though we were looking out for them.
- Aporia crataegi* L. Not at Delphi, but common at the pass above Arachova, and east of this near Osios Loukas monastery.
- Colias crocea* Fourc. Fairly frequent around Delphi, and also seen along roadsides when driving in Attica. One unidentified pale *Colias* sp. seen at Parnes, 10th May.
- Gonepteryx rhamni* L. One worn male at Delphi, 6th May.
- Gonepteryx farinosa* Zell. One worn male near Eleusis, 3rd May, and a few ditto at Delphi, 6th May.



- Limenitis anonyma* Lewin  
(*rivularis* auct.) Numerous around the Castalian spring at Delphi.
- Melitaea trivialis* Schiff. The commonest fritillary at Delphi, from below the plateau down to sea level at Itea.
- Melitaea cinxia* L. In good condition at Delphi, mainly on higher ground. The only fritillary at Mt. Parnes, but worn.
- Melitaea phoebe* Schiff. Fairly common at Delphi, particularly around the ruins.
- Issoria lathonia* L. Only seen on the plateau above Delphi, where it was frequent.
- Vanessa cardui* L. Not infrequent throughout, especially along the road from Delphi down towards Itea.
- Vanessa atalanta* L. Occasional throughout.
- Polygonia egea* Cramer. Occasional throughout, and common on and about the ruins at Delphi.
- Agapetes larissa* Hb. Only seen near Sunium, 11th May, where it was in quantity on thistle heads in a localised area of limestone.
- Pararge aegeria* L. Noted at Delphi, 5th May, and more commonly in small woods near Marathon, 10th May.
- Pararge megera* L. Frequent at Delphi, also at Parnes.
- Satyrus bryce* Hb.  
(*cordula* F.) As for *A. larissa* above, near Sunium.
- Maniola jurtina* L. Just emerging, seen at Delphi in the valley olive groves, 8th May, and at Marathon, 10th May.
- Coenonympha pamphilus* L. Common everywhere.
- Strymon ilicis* Esp. One only taken in the olive groves on the valley floor at Delphi, 8th May, with *acaciae*.
- Strymon acaciae* Esp. Common in olive groves below Delphi, 7th-8th May.
- Callophrys rubi* L. Worn specimens noted at Eleusis, 3rd May, and Delphi, 6th May.
- Heodes tityrus* Poda  
(*dorilis* Hufn.) Pass above Arachora, 3rd May. Not seen elsewhere.
- Lycaena phlaeas* L. A few seen in Delphi district, also at Mt. Parnes.
- Lampides boeticus* L. Athens, 2nd May, below the Pnyx. Worn.
- Cupido minimus* Fuesslin. Taken at Eleusis, 3rd May, Delphi, 6th and 7th May, but only singly.
- Cupido sebrus* Hb.  
(*osiris* Meigen.) Two taken at Delphi, 6th and 7th May.
- Philotes vicrama* Moore Fairly widespread at Delphi and at the pass above Arachova.

<i>Glaucopsyche alexis</i> Poda ( <i>cyllarus</i> Rott.)	Not seen at Delphi, but widespread in Attica (Eleusis, 3rd May, Levadia, 3rd May, Marathon, 10th May).
<i>Aricia agestis</i> Schiff.	Frequent at Delphi.
<i>Cyaniris semiargus</i> Rott.	Delphi, high ground, and Parnes. Specimens from Parnes included a fine <i>bellis</i> Frr. Several from Delphi approaching this form.
<i>Polyommatus icarus</i> Rott.	Common throughout.
<i>Lysandra thersites</i> Chpn.	Two seen on 3rd May, at Levadia and near Delphi; both worn.
<i>Lysandra bellargus</i> Rott.	Only one seen, on the plateau above Delphi, 6th May.

## A Note on the Genetics of *Abraxas grossulariata* ab. *fulvapicata* Raynor

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*Abraxas grossulariata* ab. *fulvapicata* Raynor (1903) differs from the typical form in the suppression of the elongate costal member of the row of black spots along the distal border of the yellow fascia of the forewing; the loss of this spot permits the yellow to spread towards the apex of the wing. The aberration was recorded by Raynor from Lancashire and from London, and was probably introduced into his breeding stock from the former county. From Raynor's stock it was doubtless transferred to those used in the extensive genetical experiments of Onslow, who gives a good figure of *fulvapicata* (Onslow 1919, Pl. IX, fig. 21), without adding any information about its occurrence or inheritance. Not being a very striking form it has been seldom recorded. Porritt (1921) did not list it as occurring in the Huddersfield district of Yorkshire; though he recorded most of the other then known recurrent aberrations, he may have regarded *fulvapicata* as too unimportant to notice. It is perhaps significant as negative evidence as to its distribution, that *fulvapicata* is not recorded by Lempke (1951, pp. 261-70) in his thorough and scientific review of the aberrations of *A. grossulariata* known in Holland, nor does he mention it in his summary of the genetic information available for the species. In view of the possibility that the aberrations of *A. grossulariata* can still add something to evolutionary theory (Hutchinson 1966), and unrecorded genetical information about these aberrations has a certain potential interest.

Some, but not all, of the families of *A. grossulariata* bred by Onslow in his genetical experiments are preserved in the Museum of Zoology of Cambridge University. In this material there are specimens of *fulvapicata* from three families. One family is represented only by a single ♂ (21 Ea♂ 5) in a drawer containing specimens selected to show the range of variation in the species. The other specimens occur in two families 22D and 22L, unfortunately without any indication of parentage. In family 22D, which was presumably obtained by crossing two individuals